



TechDirect, July 1, 2021

Welcome to TechDirect! Since the June 1 message, TechDirect gained 55 new subscribers for a total of 39,936. If you feel the service is valuable, please share TechDirect with your colleagues. Anyone interested in subscribing may do so on CLU-IN at <https://clu-in.org/techdirect>. All previous issues of TechDirect are archived there. The TechDirect messages of the past can be searched by keyword or can be viewed as individual issues.



TechDirect's purpose is to identify new technical, policy and guidance resources related to the assessment and remediation of contaminated soil, sediments and groundwater.



Mention of non-EPA documents or presentations does not constitute a U.S. EPA endorsement of their contents, only an acknowledgment that they exist and may be relevant to the TechDirect audience.

> Upcoming Live Internet Seminars

Risk Management During the Cost Estimating Process - July 14, 2021, 1:00PM-2:30PM EDT (17:00-18:30 GMT). The Society of American Military Engineers (SAME) Denver Post and Philadelphia Post along with the US Environmental Protection Agency (EPA) are hosting a series of webinars based on talks given at recent Design and Construction Issues at Hazardous Waste Sites (DCHWS) Symposiums. This presentation will discuss the identification and quantification of risk during progressive phases of design; how to mitigate risk through contract language or added cost; provide examples of how risk costs are estimated, assigned, and weighted due to probability and impact of risk; as well as how multiple risk components are analyzed and a cost strategy is developed. Examples will also show high risk projects and mitigation as well as low risk projects and mitigation. For more information and to register, please visit <https://clu-in.org/live>.

Increasing Treatment Certainty while Controlling Remediation Cost - Case Studies using Hydraulic Fracturing to Deliver Amendments at Low-Permeability Sites - July 14, 2021, 3:30PM-5:00PM EDT (19:30-21:00 GMT). The Society of American Military Engineers (SAME) Denver Post and Philadelphia Post along with the US Environmental Protection Agency (EPA) are hosting a series of webinars based on talks given at recent Design and Construction Issues at Hazardous Waste Sites (DCHWS) Symposiums. Fractures have enabled or enhanced remediation of soil, groundwater, and bedrock for decades. Advanced hydraulic fracturing methods can predictably deliver remediation amendments to low-permeability formations where amendment delivery via Darcy Flow is unreliable or ineffective. This session will present multiple case studies demonstrating the successful application of hydraulic fracturing to deliver remediation amendments to low permeability sites impacted with chlorinated solvents, which would otherwise require more expensive remedial approaches. These case studies include a range of in situ remediation approaches,

including chemical oxidation, chemical reduction, and enhanced bioremediation. Implementation costs and performance monitoring results will be presented to demonstrate the potential for hydraulic fracturing to limit project costs and drive remediation outcomes during treatment of these challenging sites. For more information and to register, please visit <https://clu-in.org/live>.

Risk e-Learning Webinar Series: Session III - Integrating Omics Data Across Model Organisms and Populations - August 3, 2021, 2:00PM-4:00PM EDT (18:00-20:00 GMT).

The NIEHS Superfund Research Program (SRP) is hosting a Risk e-Learning webinar series focused on SRP-funded data science projects that are enhancing the integration, interoperability, and reuse of data. With these supplements, the SRP encourages data sharing among its grantees to accelerate scientific discoveries, stimulate new collaborations, and increase scientific transparency and rigor. The third and final session will feature SRP-funded researchers collaborating to combine omics (e.g., genomics, proteomics) data within and across model organisms as well as studies in human populations. We will also hear from The Global Alliance for Genomics and Health about their work to incorporate semantic data models for sharing of genomic data to align with environmental health research. The first two sessions are archived and available for replay at <https://clu-in.org/live/archive/>. For more information and to register for the third session, please visit <https://clu-in.org/live>.

> New Documents and Web Resources

Updated Dioxins Focus Area. Dioxins, or polychlorinated dibenzodioxins (PCDDs), are formed as products of incomplete combustion and as byproducts of manufacturing. Although some PCDDs in the environment are released during forest fires and thus natural in origin, they are also released in combustion emissions from municipal and industrial waste incinerators and from burning fossil fuels and wood. As byproducts, PCDDs may be released during the manufacture of chlorinated chemicals (e.g., wood preservatives and herbicides), secondary metal smelting (particularly aluminum, copper, and lead), cement kilns, and chlorine bleaching of wood pulp for paper. The CLU-IN Dioxins Focus Area has been updated to reflect current chemistry, behavior, occurrence, toxicology, analytical methods, and ongoing research in potential treatment technologies. Visit the updated Focus Area at <https://clu-in.org/dioxins>.

Fiscal Year 2020 Superfund Accomplishments Report. EPA's Superfund program is responsible for cleaning up some of the nation's most contaminated land and responding to environmental emergencies and natural disasters. The FY 2020 report celebrates Superfund's 40th anniversary and calls attention to our FY 2020 achievements in cleaning up sites, protecting public health and the environment, revitalizing communities, innovating through science and technology, and engaging communities. Despite unprecedented challenges posed by the COVID-19 pandemic, Superfund site teams successfully continued mission-critical work and pivoted to virtual platforms to ensure meaningful community engagement at sites. For view and download the report, please visit <https://semspub.epa.gov/work/HQ/100002803.pdf>.

Research Brief 318: Combined Approach Sheds Light on Factors Controlling Stream Recovery. Improved water quality and stream ecosystem recovery following treatment of mine waste depends on a mix of physical, chemical, and biological factors, according to a new study funded by the NIEHS Superfund Research Program (SRP) at the Colorado School of Mines. William Clements, Ph.D., professor at Colorado State University, and two doctoral students, led the study. The North Fork of Clear Creek in Colorado is part of a 400-square-mile watershed designated as a U.S. Environmental

Protection Agency Superfund Site in 1983 due to acid mine drainage (AMD). AMD results from the process of extracting natural resources from the ground. This can release mixtures of dissolved metals and fine sediments into nearby bodies of water and change the water's pH. For more information, please visit

https://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=318.

ITRC Use and Measurement of Mass Flux and Mass Discharge. Most decisions regarding contaminated groundwater sites are driven by contaminant concentrations. These decisions can be improved by also considering contaminant mass discharge and mass flux. Mass discharge and flux estimates quantify source or plume strength at a given time and location. Consideration of the strength of a source or solute plume (i.e., the contaminant mass moving in the groundwater per unit of time) improves evaluation of natural attenuation and assessment of risks posed by contamination to downgradient receptors, such as supply wells or surface water bodies. This document is intended to foster understanding of mass discharge and mass flux estimates through description of their development and use, covering Concept and Theory, Applications, Methods for Measuring Mass Flux and Mass Discharge, and a multitude of practical case studies directly related to Mass Flux and Mass Discharge. For more information and to view the interactive web document, please visit <https://maf-1.itrcweb.org/>.

Technology Innovation News Survey Corner. The Technology Innovation News Survey contains market/commercialization information; reports on demonstrations, feasibility studies and research; and other news relevant to the hazardous waste community interested in technology development. Recent issues, complete archives, and subscription information is available at <https://clu-in.org/products/tins/>. The following resources were included in recent issues:

- Innovative Sampling Methods and Data Analysis for Reduced Long-Term Monitoring Costs
- Groundwater to Surface Water Interface Fact Sheets
- Enhanced Aquifer Recharge: Influence of Stormwater on Groundwater Quality and Aquifer Recharge
- Use of a Novel Integrated Passive Flux Sampler to Monitor the Spreading of Solutes in Groundwater
- Machine Learning Pattern Recognition for Forensic Analysis of Detected Per-And Polyfluoroalkyl Substances in Environmental Samples
- New Technique Sheds Light on PFAS in Coastal Watersheds
- DoD Vapor Intrusion Handbook Fact Sheet Update - Vapor Intrusion Preferential Pathways
- Advances in Understanding PFAS Ecological Risks

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 7 resources, events, projects and news items were added to EUGRIS in June 2021. These can be viewed at <http://www.eugris.info/whatsnew.asp> . Then select the appropriate month and year for the updates in which you are interested.

> Conferences and Symposia

The National Environmental Monitoring Conference - Bellvue, WA and Virtual, August 2-12, 2021. The National Environmental Monitoring Conference (NEMC) is the largest conference in North America focused on environmental measurements. In 2021, NEMC will be held as a hybrid event, with both an in-person and virtual event planned for the week of August 2, 2021, and a virtual-only event for the week of August

9, 2021. The in-person event will be held at the Hyatt Regency in Bellevue, Washington. The theme of this year's conference is Hitting Reset. The Conference will include a technical program featuring oral and poster presentations, a special half-day general session with a keynote speaker focused on the conference theme and updates from EPA program offices, special keynote presentations on the conference theme, and luncheon presentations, an exhibit program showcasing the latest innovations in environmental monitoring, and an Innovative New Technology Showcase. For more information and to register, please visit <https://nemc.us/>.

Call for Abstracts for 5th Annual Design and Construction Issues at Hazardous Waste Sites (DCHWS West), October 25-27, 2021. The US EPA and Society of American Military Engineers (SAME) will again co-sponsor the DCHWS West which will be held in Denver, Colorado. Interested parties may submit abstracts to present or moderate at the Symposium based on a project conducted by the presenter that is either complete or substantially complete with a focus on challenges and lessons learned at Hazardous Waste Sites. Submissions are due by Friday, July 30th. For more information, please visit

<https://sites.google.com/samephiladelphiaipost.org/dchws/west-symposium/fall-2021-dchws> .

New Dates! 2021 National Brownfields Training Conference - Oklahoma City, OK, December 8-11, 2021. The National Brownfields Training Conference is the largest event in the nation focused on environmental revitalization and economic redevelopment. Held every two years, the National Brownfields Conference attracts over 2,000 stakeholders in brownfields redevelopment and cleanup to share knowledge about sustainable reuse and celebrate the EPA brownfields program's success. Whether you're a newcomer or a seasoned professional, Brownfields 2021 offers something for you! For more information, please visit <https://brownfields2021.org>

NOTE: For TechDirect, we prefer to concentrate mainly on new documents and the Internet live events. However, we do support an area on CLU-IN where announcement of conferences and courses can be regularly posted. We invite sponsors to input information on their events at <https://clu-in.org/courses> . Likewise, readers may visit this area for news of upcoming events that might be of interest. It allows users to search events by location, topic, time period, etc.

If you have any questions regarding TechDirect, contact Jean Balent at (703) 603-9924 or balent.jean@epa.gov. Remember, you may subscribe, unsubscribe or change your subscription address at <https://clu-in.org/techdirect> at any time night or day.

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